LISTING OF THE CLAIMS

The following listing, if entered, replaces all prior versions of the claims in the present application.

1.   (Previously Presented) The method of claim 36 wherein said first cache is maintained by said upper-level system.

2.   (Original) The method of claim 1, wherein
a single cache comprises said first and said second caches.

3.   (Canceled)

4.   (Previously Presented) The method of claim 1, further comprising:
partially writing a unit of storage of a storage unit by writing a portion of said
        information from said second unit of storage to said unit of storage of said
        storage unit; and
partially writing said unit of storage of said storage unit by writing new
        information to said unit of storage of said storage unit.

5.   (Previously Presented) The method of claim 1, wherein said cloning comprises:
reading said information from said first unit of storage; and
writing said information to said second unit of storage.

6.   (Previously Presented) The method of claim 5, further comprising:
writing to said first unit of storage after said reading.

7.   (Original) The method of claim 5, further comprising:

reading said information from said second unit of storage; and

calculating parity information using said information.

8.   (Canceled)

9.   (Previously Presented) The method of claim 1, wherein said cloning

comprises:

       said first unit of storage is to be modified if said first unit of storage is to be

              written to.

10.   (Previously Presented) The method of claim 1, further comprising:

reading said information from said second unit of storage; and

calculating parity information using said information.

11.   (Previously Presented) The method of claim 1, further comprising:

modifying said first unit of storage after said performing said cloning.

12.   (Original) The method of claim 11, wherein said modifying comprises:

writing to said first unit of storage.

13.   (Original) The method of claim 1, wherein said cloning comprises:

determining if said information will be needed in the future; and

performing said cloning if said information will be needed in the future.

14.   **(Currently Amended)** A storage system comprising:

an old data cache, wherein

       said old data cache is configured to be maintained by one of an upper-

              level system and a lower-level storage module by virtue of said old

              data cache being configured to provide read access and write

              access by said one of said upper-level system and said lower-level

              storage module, and

said old data cache is further configured to be accessed by the other of said
upper-level system and said lower-level storage module by virtue
of said old data cache being configured to provide read access and
write access by said other of said upper-level system and said
lower-level storage module**, wherein said access is performed
using at least one of a set of interfaces, wherein said set of
interfaces is exported from said one of said upper-level system
and said lower-level storage module to said other of said
upper-level system and said lower-level storage module.**

15.   (Previously Presented) The storage system of claim 14,
wherein said upper-level system is communicatively coupled to said old data
cache; and
said lower-level storage module is communicatively coupled to said old data
cache and said upper-level system.

16.   (Previously Presented) The storage system of claim 15, wherein
said lower-level storage module is a volume manager.

17.   (Previously Presented) The storage system of claim 16, wherein said
lower-level storage module comprises a cache.

18.   (Previously Presented) The storage system of claim 17, wherein
said lower-level storage module is configured to clone information from a page in
said cache to a page in said old data cache.

19.   (Original) The storage system of claim 18, wherein
said upper-level system is configured to access said page in said old data cache.

20.   (Original) The storage system of claim 15, wherein said upper-level
system comprises a cache.

21. (Original) The storage system of claim 20, wherein said upper-level system is configured to clone information from a page in said cache to a page in said old data cache.

22. (Previously Presented) The storage system of claim 21, wherein said lower-level storage module is configured to access said page in said old data cache.

23. (Original) The storage system of claim 20, wherein said upper-level system is one of a filesystem, a database and a hardware RAID controller.

24. (Previously Presented) The storage system of claim 15, further comprising:

storage unit, wherein
said lower-level storage module is coupled to control said storage unit.

25. (Original) The storage system of claim 24, further comprising:
a parity cache, wherein
said storage unit is a RAID, and
said parity cache is configured to store parity information corresponding to data read from said RAID.

26. (Original) The storage system of claim 24, wherein said storage unit comprises a source volume and a snapshot volume, and said lower-level storage module is configured to write information from a page in said old data cache to said snapshot volume.

27. **(Currently Amended)** An apparatus comprising:
an upper-level system comprising a first cache, wherein
said first cache is configured to provide read access and write access by said upper-level system;

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a second cache, wherein

    said second cache is configured to provide read access and write access by

        a lower-level storage module; and

means for cloning information stored in a first unit of storage into a second unit

    of storage, wherein

    said first unit of storage is stored in said first cache,

    said second unit of storage is stored in said second cache, and

    said second cache is configured to be accessed by said lower-level storage

        module**, wherein said access is performed using at least one of**

        a set of interfaces, wherein said set of interfaces is exported

        from said lower-level storage module to said upper-level

        system.

28.   (Original) The apparatus of claim 27, wherein

said means for cloning comprises

    means for copying said information from said first unit of storage to said

        second unit of storage; and

said apparatus further comprises

    means for partially writing a unit of storage of a storage unit comprising

        means for writing a portion of said information from said second

        unit of storage to said unit of storage of said storage unit, and

    means for partially writing said unit of storage of said storage unit

        comprising means for writing new information to said unit of

        storage of said storage unit.

29.   (Original) The apparatus of claim 27, wherein

said means for cloning comprises

    means for reading said information from said first unit of storage, and

    means for writing said information to said second unit of storage; and

said apparatus further comprises

means for writing to said unit of storage, operable to write to said unit of
storage after an operation of said means for reading.

30.   **(Currently Amended)** A storage system comprising:

an upper-level system comprising a first cache, wherein
said first cache is configured to provide read access and write access by
said upper-level system;

a second cache, wherein
said second cache is configured to provide read access and write access by
a lower-level storage module;

a processor;

computer readable medium coupled to said processor; and

computer code, encoded in said computer readable medium, configured to cause
said processor to:

clone information stored in a first unit of storage into a second unit of
storage, wherein
said first unit of storage is stored in a first cache maintained by an
upper-level system, and
said second unit of storage is stored in a second cache configured
to be accessed by a lower-level storage module**, wherein
said access is performed using at least one of a set of
interfaces, wherein said set of interfaces is exported
from said lower-level storage module to said upper-
level system**.

31.   (Original) The storage system of claim 30, wherein

said computer code configured to cause said processor to clone said information
is further configured to cause said processor to copy said information
from said first unit of storage to said second unit of storage; and

said computer code is further configured to cause said processor to

partially write a unit of storage of a storage unit by virtue of being

configured to write a portion of said information from said second

unit of storage to said unit of storage of said storage unit, and

partially write said unit of storage of said storage unit by virtue of being

configured to write new information to said unit of storage of said

storage unit.

32.   (Original) The storage system of claim 30, wherein

said computer code configured to cause said processor to

read said information from said first unit of storage, and

write said information to said second unit of storage; and

said computer code is further configured to cause said processor to

write to said unit of storage after said reading.

33.   **(Currently Amended)** A computer program product comprising:

a first set of instructions, executable on a computer system, configured to clone

information stored in a first unit of storage into a second unit of storage,

wherein

said first unit of storage is stored in a first cache maintained by an upper-

level system,

said second unit of storage is stored in a second cache configured to be

accessed by a lower-level storage module, <u>wherein said access is</u>

<u>performed using at least one of a set of interfaces, wherein said</u>

<u>set of interfaces is exported from said lower-level storage</u>

<u>module to said upper-level system,</u>

said first cache is configured to provide read access and write access by

said upper-level system, and

said second cache is configured to provide read access and write access by

said lower-level storage module; and

computer readable storage media, wherein said computer program product is

encoded in said computer readable storage media.

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34.   (Previously Presented) The computer program product of claim 33, wherein said first set of instructions comprises

a first subset of instructions, executable on said computer system,
configured to clone said information is further configured to cause
said processor to copy said information from said first unit of
storage to said second unit of storage; and

said computer program product further encodes:

a second set of instructions, executable on said computer system,
configured to partially write a unit of storage of a storage unit by
virtue of being further configured to cause said processor to write
a portion of said information from said second unit of storage to
said unit of storage of said storage unit, and

a third set of instructions, executable on said computer system, configured
to partially write said unit of storage of said storage unit by virtue
of being further configured to cause said processor to write new
information to said unit of storage of said storage unit.

35.   (Previously Presented) The computer program product of claim 33, wherein said first set of instructions comprises

a first subset of instructions, executable on said computer system,
configured to read said information from said first unit of storage,
and

a second subset of instructions, executable on said computer system,
configured to write said information to said second unit of storage;
and

said computer program product further encodes:

a second set of instructions, executable on said computer system,
configured to write to said unit of storage after said reading.

36.   **(Currently Amended)** A method comprising:

maintaining a first cache, wherein

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said maintaining is performed by one of an upper-level system and a
lower-level storage module, and

said first cache is configured to provide read access and write access by
said one of said upper-level system and said lower-level storage
module;

cloning information stored in a first unit of storage into a second unit of storage,
wherein

said first cache comprises said first unit of storage and a second cache
comprises said second unit of storage; and

accessing said second cache, wherein

said accessing is performed by the other of said upper-level system and
said lower-level storage module, ~~and~~

said second cache is configured to provide read access and write access by
said other of said upper-level system and said lower-level storage
module, **and**

said accessing is performed using at least one of a set of interfaces,
wherein said set of interfaces is exported from said one of said
upper-level system and said lower-level storage module to said
other of said upper-level system and said lower-level storage
module.

37.   **(Cancelled)**

38.   **(New)** The method of claim 36 further comprising freeing said second
unit of storage.

39.   **(New)** The method of claim 36 wherein said upper-level system manages
cloned information in said second cache via an application programming interface
(API).

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40.   (New) The method of claim 36 further comprising copying said second unit of storage to a copy-on-write snapshot.